

REMARKS

This is in response to the non-final Office Action after RCE dated August 27, 2009, in which claims 3-14, 18, 24-26 and 30-32 were pending, and claims 6, 8, 10 and 11 were previously withdrawn from consideration. In the Office Action, claims 3-5, 7, 9, 13-14, 18, 25 and 26 were rejected under 35 U.S.C. §102(b) as being anticipated by Anthony Jr. (U.S. 3,342,271), or, in the alternative, under 35 U.S.C. §103(a) as obvious over Anthony Jr. in view of Sundholm (U.S. 6,318,474); claims 3-5, 7, 9, 12-14, 18, 25-26 and 32 were rejected under 35 U.S.C. §102(b) as being anticipated by Terpigorjev et al. (WO 95/24274); claims 12, 24 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Terpigorjev et al.; claims 30 and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Anthony Jr. in view of Russwurm et al. (U.S. 6,173,790), or, in the alternative, over Anthony Jr. as modified by Sundholm in view of Russwurm; and claims 30 and 31 were additionally rejected under 35 U.S.C. §103(a) as being unpatentable over Terpigorjev in view of Russwurm.

With this Amendment, dependent claim 31 has been amended to correct the informalities noted in the Office Action. Claims, 4-5, 7, 12, 18, 24 and 32, have been amended to clarify the subject matter of the invention as described in more detail below.

The application, with pending claims 3-14, 18, 24-26 and 30-32 still under consideration, is in condition for allowance, and notice to that effect is respectfully requested.

I. Rejection of claims 3-5, 7, 9, 13-14, 18, 25 and 26 under as being anticipated by Anthony Jr., or in the alternative, as obvious over Anthony Jr. in view of Sundholm (Office Action, pp. 2-6).

A. Rejection of independent claim 4 and pending claims 13-14 that depend therefrom.

Independent claim 4 has been amended to clarify the structure of a system according to the invention, including a first path for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof, and a second path for guiding the flow of the pressurized gas to the misting means at a mass flow rate thereof. Support for these amendments may be found, for example, in FIG. 3 of the application.

Independent claim 4 has been further amended to recite “means for applying a pressure of the pressurised gas to the source of the liquid extinguishing agent, wherein the applied pressure of the pressurised gas continually reduces during the flow thereof through the second path.” The application states that “as the gas pressure in the vessels 14 decays, there will clearly be a reduction in the value of M_w .” (Application, pg. 5). Furthermore, this decay in pressure will be continual due to the direct, unregulated application of gas pressure from vessels 14 to the liquid extinguishing agent in vessel 5 shown in FIG. 3, for example.

Anthony Jr. does not teach a system where the applied pressure of the pressurised gas continually reduces. Rather, Anthony Jr. teaches a “pressure regulator 27 connected in the conduit 26 for supplying air to the aspirator at a uniform predetermined pressure and flow rate,” and “a conduit 34 connected to the conduit 26 downstream of the regulator 27 and to the tank inlet 30 so as to provide a pressure head of a reduced uniform and predetermined pressure for expelling the solution upwardly through the siphon tube 31.” (Col. 2, lines 42-45 and 60-66, respectively). Therefore, Anthony Jr. does not teach or suggest the system of claim 4 where pressure applied to the liquid extinguishing agent is allowed to continually reduce as gas exits the pressurised gas source. Even if it is argued that applied pressure will reduce once the limit of the regulator has been reached, this would not teach a continual reduction of applied pressure as required by claim 4.

Additionally, independent claim 4 has been amended to recite “means in the first path for automatically adjusting the mass flow rate of the liquid extinguishing agent as a function of the applied pressure of the pressurised gas so as to control the ratio of the mass flow rate of the liquid extinguishing agent in the first path to the mass flow rate of the pressurised gas in the second path towards such a value as to tend to produce a constant droplet size distribution in and for substantially the duration of the discharge.” Support for these amendments may be found, for example, in FIG. 3 and on pages 6-7 of the application:

Figure 3 shows a modification of the system of Figure 1 in which the metering valve 7 is directly controlled by the pressure in vessels 14 (via a branch from interconnection 30)...The characteristics of the valve 7 would be selected so that it was adjusted by the decaying gas pressure in such a way as to tend to keep the ratio M_w/M_g constant... M_w will be directly proportional to the effective size of the varying orifice in the metering valve 7. Thus, if the metering valve 7 is a pressure control proportioning water valve having an orifice size directly controlled by the gas pressure, this will tend to keep the ratio M_w/M_g constant.

Anthony Jr. does not teach or suggest such a system. Anthony Jr. shows a valve 36 located on conduit 32, described as a solution flow control valve to provide for independent flow rate control, but does not teach or suggest that it would function as means for automatically adjusting the mass flow rate of the solution as a function of the gas pressure in conduit 34. (See col. 2, lines 65-70 and Figure).

Because Anthony Jr. does not teach all the elements of amended independent claim 4, the applicant respectfully submits that claim 4 is not anticipated by the prior art. Accordingly, the rejection of pending claims 13-14 that depend therefrom is rendered moot in view of the foregoing arguments.

B. Rejection of independent claim 5 and pending claims 3, 7 and 9 that depend therefrom.

Independent claim 5 has been amended to clarify the structure of a system according to the invention, including a first path for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof, a second path for guiding the flow of the pressurized gas to the misting means at a mass flow rate thereof, and a third path for applying a pressure of the pressurised gas to the source of the liquid extinguishing agent. Support for these amendments may be found, for example, in FIG. 3 of the application.

Additionally, independent claim 4 has been amended to recite “wherein the control means includes controllable valve means in the first path for automatically adjusting the mass flow rate of the liquid extinguishing agent in the first path as a function of the pressure of the pressurised gas in the third path during the discharge.” Support for these amendments may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Anthony Jr. does not teach or suggest such a system. Anthony Jr. shows a valve 36 located on conduit 32, described as a solution flow control valve to provide for independent flow rate control, but does not teach or suggest that it would function as controllable valve means for automatically adjusting the mass flow rate of the solution in conduit 32 as a function of the gas pressure in conduit 34. (See col. 2, lines 65-70 and Figure).

Furthermore, claim 7 that depends from independent claim 5 has been amended to recite that the valve means comprises a “pressure control proportioning water valve having an orifice size directly controlled by the pressure of the pressurised gas in the third path.” Support for this amendment may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above. This element is also not taught or suggested by the disclosure of Anthony Jr.

Because Anthony Jr. does not teach all the elements of amended independent claim 5 and claim 7 that depends therefrom, the applicant respectfully submits these claims are not anticipated by the prior art. Accordingly, the rejection of additional pending claims 3 and 9 that depend from independent claim 5 is rendered moot in view of the foregoing arguments.

C. Rejection of independent claim 18 and pending claims 25-26 that depend therefrom.

Independent claim 18 has been amended to include the step of “directly controlling a valve using the applied pressure of the stored gas to adjust the mass flow rate of the liquid extinguishing agent.” Support for this amendment may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Anthony Jr. does not teach or suggest such a system. Anthony Jr. shows a valve 36 located on conduit 32, described as a solution flow control valve to provide for independent flow rate control, but does not teach or suggest directly controlling the valve using the applied pressure of the stored gas to adjust the mass flow rate of the liquid extinguishing agent. (See col. 2, lines 65-70 and Figure).

Because Anthony Jr. does not teach all the elements of amended independent claim 18, the applicant respectfully submits that claim 18 is not anticipated by the prior art. Accordingly, the rejection of pending claims 25-26 that depend therefrom is rendered moot in view of the foregoing arguments.

II. Rejection of claims 3-5, 7, 9, 12-14, 18, 25-26 and 32 as being anticipated by Terpigorjev et al.

A. Rejection of independent claim 4 and pending claims 13-14 that depend therefrom.

Independent claim 4 has been amended to clarify the structure of a system according to the invention, including a first path for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof, and a second path for guiding the flow of the pressurized gas to the misting means at a mass flow rate thereof. Support for these amendments may be found, for example, in FIG. 3 of the application.

Independent claim 4 has been further amended to recite “means for applying a pressure of the pressurised gas to the source of the liquid extinguishing agent, wherein the applied pressure of the pressurised gas continually reduces during the flow thereof through the second path.” The

application states that “as the gas pressure in the vessels 14 decays, there will clearly be a reduction in the value of M_w .” (Application, pg. 5). Furthermore, this decay in pressure will be continual due to the direct, unregulated application of gas pressure from vessels 14 to the liquid extinguishing agent in vessel 5 shown in FIG. 3, for example.

Terpigorjev et al. does not teach a system where the applied pressure of the pressurised gas continually reduces. Rather, Terpigorjev et al. shows a valve 8 for “regulating the flow of gas to the liquid vessel.” (Page 8, lines 10-11). In other words, valve 8 functions as a regulator to restrict the flow of gas, which would prevent applied pressure on vessel 1 from continually reducing as is required by the claim. There is no evidence in the reference to suggest an unregulated application of pressure on vessel 1.

Additionally, independent claim 4 has been amended to recite “means in the first path for automatically adjusting the mass flow rate of the liquid extinguishing agent as a function of the applied pressure of the pressurised gas so as to control the ratio of the mass flow rate of the liquid extinguishing agent in the first path to the mass flow rate of the pressurised gas in the second path towards such a value as to tend to produce a constant droplet size distribution in and for substantially the duration of the discharge.” Support for these amendments may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Terpigorjev et al. does not teach or suggest such a system, and shows no flow control means existing between liquid vessel 1 and mixing device 3. (See Fig. 4 and description on page 8, lines 3-20).

Because Terpigorjev et al. does not teach all the elements of amended independent claim 4, the applicant respectfully submits that claim 4 is not anticipated by the prior art. Accordingly, the rejection of pending claims 13-14 that depend therefrom is rendered moot in view of the foregoing arguments.

B. Rejection of independent claim 5 and pending claims 3, 7 and 9 that depend therefrom.

Independent claim 5 has been amended to clarify the structure of a system according to the invention, including a first path for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof, a second path for guiding the flow of the pressurized gas to the misting means at a mass flow rate thereof, and a third path for applying a pressure of the pressurised gas to the source of the liquid extinguishing agent. Support for these amendments may be found, for example, in FIG. 3 of the application.

Additionally, independent claim 4 has been amended to recite “,wherein the control means includes controllable valve means in the first path for automatically adjusting the mass flow rate of the liquid extinguishing agent in the first path as a function of the pressure of the pressurised gas in the third path during the discharge.” Support for these amendments may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Terpigorjev et al. does not teach or suggest such a system, and shows no flow control means such as a valve existing between liquid vessel 1 and mixing device 3. (See Fig. 4 and description on page 8, lines 3-20).

Furthermore, claim 7 that depends from independent claim 5 has been amended to recite that the valve means comprises a “pressure control proportioning water valve having an orifice size directly controlled by the pressure of the pressurised gas in the third path.” Support for this amendment may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above. This element is also not taught or suggested by the disclosure of Terpigorjev et al.

Because Terpigorjev et al. does not teach all the elements of amended independent claim 5 and claim 7 that depends therefrom, the applicant respectfully submits these claims are not anticipated by the prior art. Accordingly, the rejection of additional pending claims 3 and 9 that depend from independent claim 5 is rendered moot in view of the foregoing arguments.

C. Rejection of independent claim 12.

Independent claim 12 has been amended to clarify the structure of a system according to the invention, including a first path for guiding the flow of the liquid extinguishing agent to the mist producing means at a mass flow rate thereof, a second path for guiding the flow of the pressurized gas to the misting means at a mass flow rate thereof, and a third path for applying a pressure of the pressurized gas to the source of the liquid extinguishing agent. Support for these amendments may be found, for example, in FIG. 3 of the application.

Additionally, independent claim 12 has been amended to recite “including a valve in the first path having a variable orifice controlled by the pressure of the pressurized gas in the third path to adjust the mass flow rate of the liquid extinguishing agent in the first path.” Support for this amendment may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Terpigorjev et al. does not teach or suggest such a system, and shows no flow control means such as a valve existing between liquid vessel 1 and mixing device 3. (See Fig. 4 and description on page 8, lines 3-20).

Because Terpigorjev et al. does not teach all the elements of amended independent claim 12, the applicant respectfully submits that claim 12 is not anticipated by the prior art.

D. Rejection of independent claim 18 and pending claims 25-26 that depend therefrom.

Independent claim 18 has been amended to include the step of “directly controlling a valve using the applied pressure of the stored gas to adjust the mass flow rate of the liquid extinguishing agent.” Support for this amendment may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Terpigorjev et al. does not teach or suggest such a system, and shows no flow control means such as a valve existing between liquid vessel 1 and mixing device 3. (See Fig. 4 and description on page 8, lines 3-20).

Because Terpigorjev et al. does not teach all the elements of amended independent claim 18, the applicant respectfully submits that claim 18 is not anticipated by the prior art. Accordingly, the rejection of pending claims 25-26 that depend therefrom is rendered moot in view of the foregoing arguments.

E. Rejection of independent claim 32.

Independent claim 32 has been amended to recite “applying the pressure of the stored gas to pressurise the liquid and to control a valve for adjusting the mass flow rate of the liquid, whereby the reduced applied pressure ~~correspondingly reduces~~ adjusts the mass flow rate of the liquid extinguishing agent.” Support for this amendment may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Terpigorjev et al. does not teach or suggest applying pressure of stored gas from vessel 4 to control a valve for adjusting the mass flow rate of the liquid coming out of vessel 1. Furthermore, Terpigorjev et al. shows no flow control means such as a valve existing between liquid vessel 1 and mixing device 3. (See Fig. 4 and description on page 8, lines 3-20).

Because Terpigorjev et al. does not teach all the elements of amended independent claim 32, the applicant respectfully submits that claim 32 is not anticipated by the prior art.

III. Rejection of claims 12, 24 and 33 as being obvious over Terpigorjev et al.

For the reasons cited above with regard to anticipation of claims 12 and 32 (from which claim 33 depends), the prior art fails to teach all elements of these claims. When determining whether a claim is obvious, an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, “obviousness requires a suggestion of all limitations in a claim.” CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003)(citing In re Royka, 490 F.2d 981, 985 (C.C.P.A. 1974)). Because the prior art fails to teach all elements of claims 12 and 32 (from which claim 33 depends), the rejection of these claims is rendered moot with regard to obviousness.

A. Rejection of independent claim 24.

Independent claim 24 has been amended to include the steps of “applying a pressure of the pressurised gas to pressurise the liquid extinguishing agent,” and “directly controlling a valve using the applied pressure of the pressurised gas to adjust the mass flow rate of the liquid extinguishing agent.” Support for this amendment may be found in FIG. 3 and in the disclosure found on pages 6-7 of the application excerpted above.

Terpigorjev et al. does not teach or suggest directly controlling a valve using applied pressure of pressurized gas from vessel 4 for adjusting the mass flow rate of the liquid coming out of vessel 1. Furthermore, Terpigorjev et al. shows no flow control means such as a valve existing between liquid vessel 1 and mixing device 3. (See Fig. 4 and description on page 8, lines 3-20).

When determining whether a claim is obvious, an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, “obviousness requires a suggestion of all limitations in a claim.” CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003)(citing In re Royka, 490 F.2d 981, 985 (C.C.P.A. 1974)). Because Terpigorjev et al. does not teach all elements of independent claim 24, the applicant respectfully submits that claim 24 is not obvious in view of the prior art.

IV. Rejection of claims 30 and 31 as being obvious over Anthony Jr. in view of Russwurm et al., or in the alternative, over Anthony Jr. as modified by Sundholm in view of Russwurm.

For the reasons cited above with regard to anticipation of claims 4 and 18 (from which claims 30 and 31 depend, respectively), the prior art fails to teach all elements of these claims. When determining whether a claim is obvious, an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, “obviousness requires a suggestion of all limitations in a claim.” CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003)(citing In re Royka, 490 F.2d 981, 985 (C.C.P.A. 1974)). Because the prior art fails to teach all elements of

claims 4 and 18, the rejection of claim 30 and 31 that depend therefrom, respectively, is rendered moot with regard to obviousness.

V. Rejection of claims 30 and 31 as being unpatentable over Terpigorjev et al. in view of Russwurm.

For the reasons cited above with regard to anticipation of claims 4 and 18 (from which claims 30 and 31 depend, respectively), the prior art fails to teach all elements of these claims. When determining whether a claim is obvious, an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995). Thus, “obviousness requires a suggestion of all limitations in a claim.” CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003)(citing In re Royka, 490 F.2d 981, 985 (C.C.P.A. 1974)). Because the prior art fails to teach all elements of claims 4 and 18, the rejection of claim 30 and 31 that depend therefrom, respectively, is rendered moot with regard to obviousness.

CONCLUSION

For the foregoing reasons, the application, with pending claims 3-14, 18, 24-26 and 30-32 still under consideration, is in condition for allowance, and notice to that effect is respectfully requested.

The Examiner is cordially invited to contact the undersigned at the telephone number listed below if such a call would in any way facilitate the allowance of this application.

The Commissioner is hereby authorized to charge any additional fees which may be required under 37 C.F.R. 1.16 and 1.17, or credit any overpayment, to Deposit Account No. 11-0982.

Respectfully submitted,

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Date: 1/27/10

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